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DESIGNATION OF A LECTOTYPE FOR *CROCODYLUS RANINUS* S. MÜLLER AND SCHLEGEL (REPTILIA: CROCODYLIDAE), THE BORNEO CROCODILE

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Abstract.—The type series of *Crocodylus raninus* is a composite of three species: *Crocodylus siamensis* from Java, *Crocodylus porosus* and *Crocodylus raninus* (sensu Ross 1990) from Borneo. Designation of a lectotype (RMNH 3219) restricts the type locality of *C. raninus* to Pontianak, Kalimantan Barat, Indonesian Borneo, and reaffirms its validity as a distinct Bornean species.

In resurrecting *Crocodylus raninus* S. Müller & Schlegel, 1844 (Ross 1990), I made two assumptions: that the type series contained only two Bornean specimens and that only two species of *Crocodylus* occur on Borneo. A more complete translation of Müller & Schlegel's (1844) article, examination of crocodilian specimens in the Nationaal Natuurhistorisch Museum, Leiden [formerly Rijksmuseum van Natuurlijke Historie (RMNH)], and circumstantial evidence received from biologists working in Borneo, prove the first assumption incorrect, and make the second suspect. These new data do not negate the validity of *C. raninus* but do necessitate the designation of a lectotype for this species.

Müller & Schlegel (1844:15–18) discussed variation in *Crocodilus biporcatus* Cuvier, 1807 (=*Crocodylus porosus* Schneider, 1801) and differentiated five specimens then in the RMNH collection from it. They used the name *raninus* (1844:26) to designate the new taxon which they had referred to as a blunt-snouted race (1844:15–18), distinct from typical *C. porosus*. They also figured two specimens without number or other identifying marks, an adult skull and a juvenile, as *C. raninus* (1844, pl. 3, figs. 7 and 8).

These five specimens were extant and, in the absence of a formal designation of type material, must be considered syntypes. Additional material in the collection of "Luitenant-Kolonel Henrici" of Borneo was mentioned by Müller & Schegel (1844:16) but was not available to them in Leiden and was not included in their description. Another RMNH specimen collected by Kuhl and van Hasselt in Java was originally identified as *Crocodylus rhombifer* Cuvier, 1807, by Boie, and reidentified by Müller & Schlegel (1844:15) as *C. vulgaris* Cuvier, 1807 (=*Crocodylus niloticus* Laurenti, 1768) and now identified as *Crocodylus siamensis* Schneider, 1801, by RMNH staff, also has no bearing on the type series of *C. raninus*.

Museum abbreviations follow Leviton et al. (1985).

The syntypes include two juvenile crocodiles collected by Boie and Macklot at Tjikao (=Kao Tji, Jawa Barat), Java, in 1827. One of these (RMNH 21695) was originally prepared as a mounted specimen but subsequently had its stuffing removed and now is stored as a dry skin with its skull and mandibles separate. The other (SMF 8090, received on exchange from RMNH) was prepared as a whole alcoholic specimen but now has its skull and mandibles removed and separate. These specimens are *C. siamensis* Schneider, 1801; both skulls have the longitudinal interorbital ridge characteristic of *C. siamensis* and their skins have granular anterior throat scales unlike any

other extant crocodile species (see Ross 1990).

Another juvenile syntype (a whole alcoholic specimen, RMNH 3219) was collected by P. Diard at Pontianak (Kalimantan Barat), Borneo, and referred to (correctly) by me (1990) as *C. raninus.*

The other syntypes are adult skulls listed by Lidth de Jeude (1898) as "n" and "p" and remain so marked in the RMNH collection. Six measurements for both skulls, contrasted with similarly sized skulls of *C. porosus,* were given by Müller & Schlegel (1844:17) making identification of these syntypes certain. The largest skull (n), collected in the interior of Borneo by Müller in 1836, is a *C. porosus*; it is large (64.5 cm from the posterior margin of the cranial table to tip of snout), has the lachrymal ridges well developed and nearly parallel and distinct to the ninth maxillary tooth, and a palatine-pterygoid suture directed strongly posteriorly and partially dissecting the pterygoid (see Ross 1990).

The other skull (p), collected from a tributary of the Banjer River (tributary of Sungai Barito, Kalimantan Tengah), Borneo, by Müller in 1836, is smaller (45.0 cm, measured as above) and although slightly deformed is *C. raninus* sensu Ross (1990); its palatine-pterygoid suture is nearly transverse, there is no longitudinal interorbital ridge, and the lachrymal ridges are poorly developed.

The identification of RMNH 3219 as a species of crocodile from Borneo distinct from *C. porosus* and *C. siamensis* on the basis of dermal characteristics (25 transverse ventral scale rows, four postoccipital scales, and 38–39 transverse throat scale rows) is clear and it is herein designated as lectotype for *C. raninus* S. Müller & Schlegel. The four other specimens (paralectotypes) form a composite series of *C. porosus* (RMNH n) and *C. raninus* (RMNH p) from Borneo and *C. siamensis* (RMNH 21695 and SMF 8090) from Java.

Discussion

Live *C. siamensis* (identified by throat squamation and other external characters) have recently been discovered at commercial crocodile farms in Kalimantan, Borneo (G. Webb, in litt.). There is no certainty that these animals originated from Borneo and none have, so far, been found in the wild. *Crocodylus siamensis* historically does occur on Java (MZB 3, Ancol, Jawa Barat; MZB 15, Donau, Banten (Serang District), Jawa Barat; RMNH 21695 and SMF 8090, Kao Tji, Jawa Barat) and is present in crocodile farms in Jakarta (Ross, pers. obs.). Its natural occurrence on Borneo, while doubtful, can not be casually dismissed although historic references to palustrine crocodiles in Borneo refer to *C. raninus.*

The distribution and status (both population and taxonomic) of Indonesian crocodiles remain poorly known. Examination of most available museum specimens suggests that palustrine crocodiles were widespread in the Indonesian islands and problematic material from Amboin (ZMA uncat., IRSNB 3919), Sumatra (RMNH uncat.), Bangka (RMNH 21687–9), Simaloer (RMNH uncat.) and Sulawesi (USNM 42834), have been examined but require further study pending accumulation of additional specimens.

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